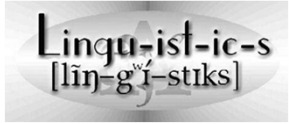


LNGT0101

Introduction to Linguistics



Lecture #15
Nov 2nd, 2011

Announcements

- Screening of *The Linguists* is scheduled for Tuesday Nov 8th at 7-8pm in Room 230 at the Davis Library. I'll send a reminder early next week.
- Short presentations starting next week on different chapters from *Language Myths*. The book is on physical reserve at the library.

2

Transition from last class

- Last time we talked about **parameters**, the component of UG responsible for cross-linguistic variation.
- The second component of UG is **principles**, which are argued to be shared by all languages.
- We talk about examples of these universal principles today.

3

Constraints on Wh-movement

- We have already seen examples of wh-movement in English (remember “*t*” is the trace of the moved wh-phrase):
Who did John meet *t* ?
- Notice that the distance between the wh-phrase and its original position in the D-structure could be, in principle, unbounded:
Who did you say that John met *t* ?
Who does Mary believe that you said that John met *t* ?
etc.

4

Constraints on Wh-movement

- But now consider these cases of wh-movement:
*Who did you meet Mary and *t* ?
*Who do you believe the claim that Mary met *t* ?
*Which book did Mary talk to the author who wrote *t* ?
*Who do you wonder whether Mary met *t* ?
*Who did Mary talk to John without meeting *t* ?
- Obviously, wh-movement is not unconstrained. There are cases where the movement is, for some reason, *blocked*.

5

Islands

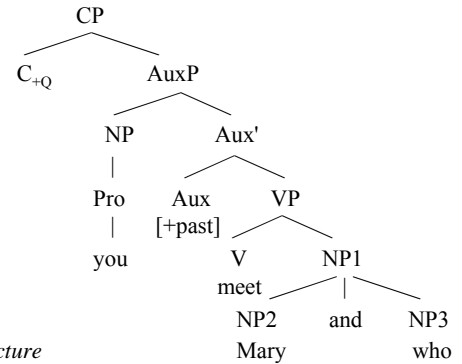
- The substructures out of which wh-movement is blocked are called syntactic *islands*.
- Complex NPs are islands:
*Who do you believe [_{NP} **the claim** [_{CP} **that Mary met *t***]]?
*Which book did Mary talk to [_{NP} **the author** [_{CP} **who wrote *t***]]?

6

Islands

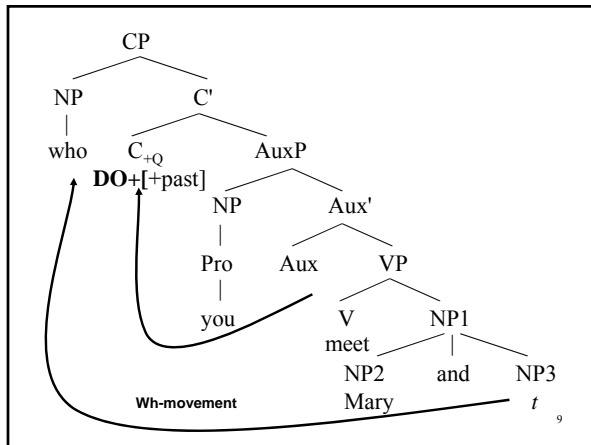
- Also, embedded CPs introduced by a *wh*-word act as islands for *wh*-movement:
 - *Who do you wonder [_{CP} **whether Mary met *t***]?
- Adverbial clauses introduced by *without*, *after*, *before*, etc., are also islands:
 - *Who did Mary talk to John [_{CP} **without meeting *t***]?
- Coordinate NPs are also islands;
 - *Who did you meet [_{NP} **Mary and *t***]?
- Let's draw a tree for this last *wh*-question and see if we can make sense of what's going on.

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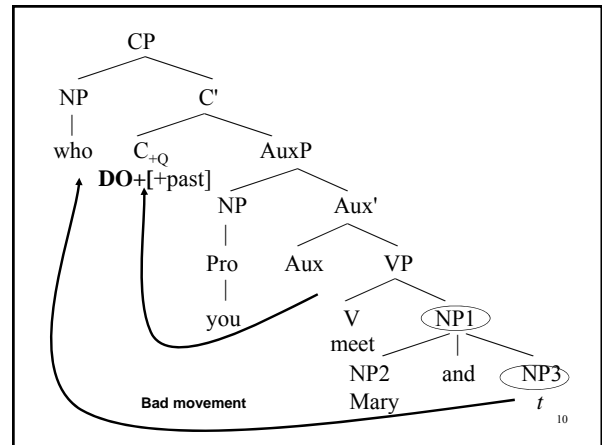


D-structure

8



9



10

Islands

- Similar island effects are observed in other languages with *wh*-movement.
- Island constraints cannot possibly be learned on the basis of the PLD that the child hears around her.
- If so, then the inevitable conclusion is that they must be *universal*.

11

Revisiting a puzzle from the last class

Anne hit the man with an umbrella.

Two meanings

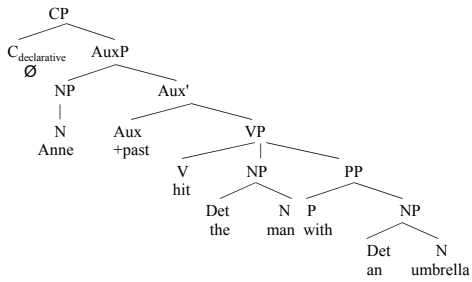
What did Anne hit the man with?

One meaning

- That's again where trees help.

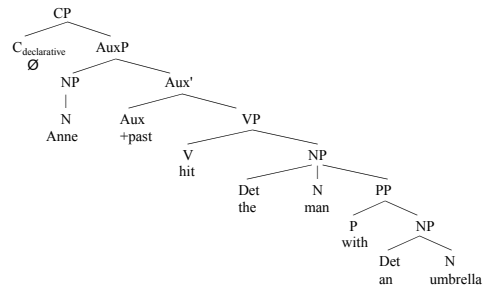
12

Anne hit the man with an umbrella.
 “Meaning: Anne held an umbrella and hit the man with it.”



13

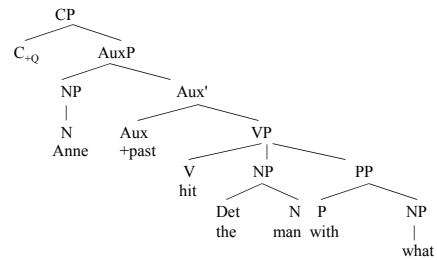
Anne hit the man with an umbrella.
 “Meaning: Anne hit the man who was holding an umbrella.”



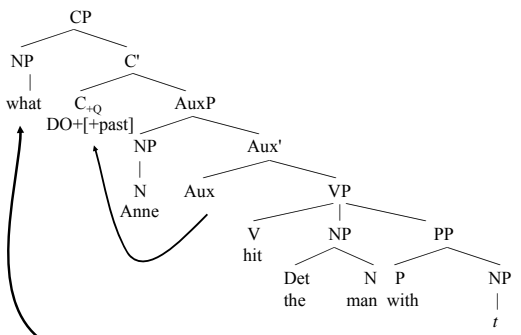
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- Now, let's draw trees for a wh-question out of each structure.

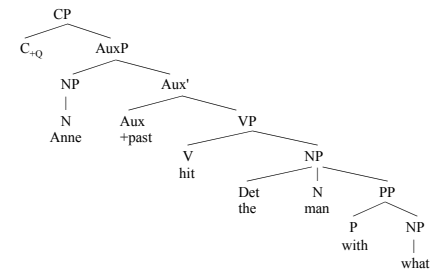
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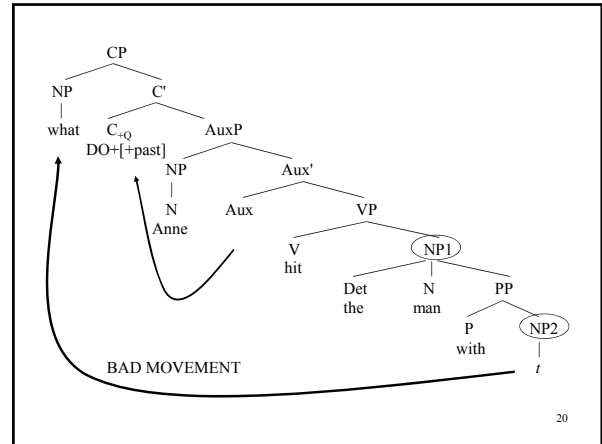
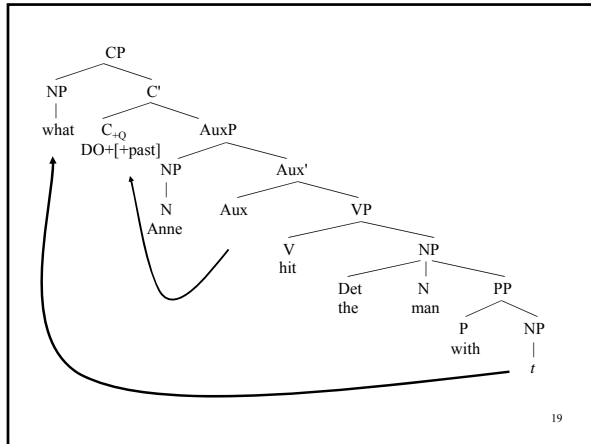
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17



18



An old puzzle: *wanna*-contraction

- Who do you want to kiss?
Who do you *wanna* kiss?
- Who do you want to kiss Mary?
*Who do you *wanna* kiss Mary?
- Compare: I want to kiss Mary.
I *wanna* kiss Mary.
- Provide a principled explanation for the contrast for 4 points of extra credit. Deadline: Monday Nov 7th in class.

21

UG as a falsifiable hypothesis

- A scientific theory has to make predictions, and the predictions have to be falsifiable.
- So, what are some falsifiable predictions that a theory of UG makes? And how can we test them?

22

Prediction #1

- A theory of UG makes an interesting prediction about language acquisition by children:
"Child language can differ from adult language only in the same ways adult languages differ from each other."
- This is known as the *Continuity Hypothesis* (Pinker 1984, Crain 1991, among others).
- In other words, whatever utterances children produce have to fall within the realm of what is allowed by UG.

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Parameters of question-formation

- Human languages differ in the way they form so-called wh-questions.
- Some languages like English form a question by fronting the wh-word:
What did you see _?
- Let's call this type of languages **wh-fronting** languages.

24

Parameters of question-formation

- In other languages like Japanese, Chinese, and Egyptian Arabic, the wh-word appears where other nouns appear:

Japanese

John-ga dare-o butta ka?
 John-Subj who-Obj hit Q-particle
 “Who did John hit?”

Egyptian Arabic

?inta fuft miin?
 you saw who
 “Who did you see?”

- This type is called **wh-in-situ** languages.

25

Parameters of question-formation

- Within the wh-fronting-type, languages can differ further as to whether they allow **partial wh-fronting**.

In **English**, partial wh-fronting is prohibited:

Who do you think that Mary saw _?

*Do you think who that Mary saw _?

- In **Malay**, however, partial wh-fronting is perfectly acceptable, leading to a medial wh-phrase in the structure (Cole and Hermon 2000):

Kamu fikir ke mana Mary pergi _?

you think to where Mary go

“Where do you think that Mary went?”

26

Parameters of question-formation

- Similar partial wh-fronting effects have been observed in both Hungarian and a dialect of German, except that in these languages two wh-words appear, one medially and one in front. Let’s call this **wh-doubling**.

Hungarian (Horvath, 1997)

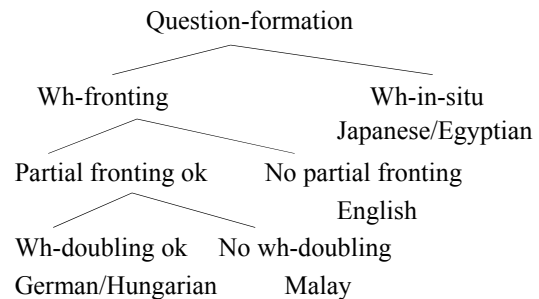
Mit gondolz hogy kivel beszelt Mari?
 who think that who-with talk Mari
 “With whom do you think that Mari talked?”

German (McDaniels, 1989)

Was glaubst du mit wem Maria jetzt spricht?
 What believe you with whom Maria now talks
 “With whom do you think Maria is now talking?”

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Parameters of question-formation (rather simplified)



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So, what do children sometimes do?

WATCH

(This movie was created by Stephen Crain, Rosalind Thornton, and Graciela Tesan, at the Language Acquisition Laboratory at the University of Maryland, College Park.)

29

So, what do children do?

- Interestingly, children learning English have been observed to produce doubling wh-questions of the German and Hungarian type:

What do you think **what**’s in the box?

What do you think **where** the marble is?

What do you think **what** Cookie Monster eats?

- How do English-learning children know that this is a possibility in human language, even though they never hear such questions in the PLD?

30

But it gets interesting. Observe:

- **First**, compound wh-phrases such as “which + noun” cannot be repeated in that wh-doubling German dialect:
*Wessen Buch glaubst du wessen Buch Hans liest?
which book believe you which book Hans reads
- Interestingly, English-learning children do not repeat lexical wh-phrases in medial position, either. Instead, children shorten the wh-phrase or omit it altogether:
Which Smurf do you think (who) is wearing roller skates?
*Which Smurf do you think which Smurf is wearing roller skates?

31

And again observe:

- **Second**, medial wh-words are not permitted if the embedded clause is an infinitival:
 - a. *Was versucht wen Hans anzurufen?
who try who Hans call
 - b. Wen versucht Hans anzurufen?
who try Hans call
“Whom is Hans trying to call?”
- Interestingly again, English-learning children do not repeat wh-phrases in medial position if the complement is an infinitival:
“Who do you want who to win?” is unattested in their speech, even upon elicitation.

32

Moral of the wh-story

- Well, if children learn on the basis of input only, then we have no explanation for why medial wh-questions appear in their language, let alone the fact that their appearance is restricted in certain contexts (never with “which + noun,” or with infinitivals).
- If, by contrast, children have access to what is “a possible human language,” their non-adult productions are not as mysterious any more.

33

Prediction #2

- “Whenever a universal principle is at work, children will *not* produce non-adult forms.”
- We test that prediction with regard to binding of reflexives and pronouns in English.

34

A note on convention

- Before we discuss binding, just a quick note on “convention”:
To indicate coreference between two elements in a sentence, linguists use the convention of subscripting both elements with the same index, e.g.,
John_i said that he_i already had lunch. (*John = he*)
John_i said that he_j already had lunch. (*John ≠ he*)
- A more economical way to represent the two possible readings of the sentence is by using the slash notation with subscripts:
John_i said that he_{i/j} already had lunch.
- When coreference is not possible, we indicate that by putting the * on the subscript itself:
He_{*i/j} said that John_i already had lunch.

35

Binding!

- Now, let’s revisit some English examples from early in the semester on the difference between reflexives and other kinds of pronouns.

36

Reflexive and pronominal Binding

- a. John_i hurt himself_{i/*j}
(*himself* has to refer to John; it cannot refer to someone else)
- b. John_i hurt him_{i/*j}
(*him* cannot refer to John; it has to refer to someone else.)
- Structure-independent rules?
 - A reflexive must corefer with a preceding noun.
 - A pronoun cannot corefer with a preceding noun.

37

Reflexive and pronominal Binding

- c. John_i said that Bill_j hurt himself_{i/*j}
(*himself* refers to Bill, but not to John)
 - d. John_i said that Bill_j hurt him_{i/*j/k}
(*him* cannot refer to Bill, but may refer to John or to someone else)
 - Revised structure-independent rules:
 - A reflexive must corefer with the *closest* preceding noun.
 - A pronoun cannot corefer with the *closest* preceding noun.
- [The father of [the boy]]_j hurt himself_{i/*j}
[The father of [the boy]]_j hurt him_{i/*j/k}

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Also ...

- Consider this sentence:
 - [[John]_i's father]_j likes himself_{i/*j}
 - [[John]_i's father]_j likes him_{i/*j/k}
- How can we explain these binding facts then?
Can syntax help?

39

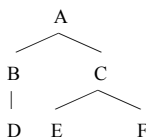
Hierarchy does matter: Introducing C-command

- It turns out that the key to the solution is again structural.
- The solution rests on one of the fundamental notions in syntactic theory: *c-command* (the "c" stands for "constituent").
- C-command is a tree-geometric relation, but to understand it, we need to introduce some other basic tree-geometric terms first.
- Thinking of a syntactic tree as a family tree, we use terms for family relations (on the maternal side) to refer to relations between nodes in the tree.

40

Mothers, daughters, and sisters

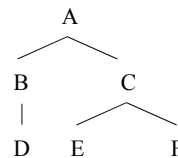
- Consider the following abstract tree:



- We say:
 - A is a mother of B and C; C is a mother of E and F; and B is a mother of D.
 - B and C are sisters, and so are E and F.
 - B and C are daughters of A, and E and F are daughters of C. D is a daughter of B.

41

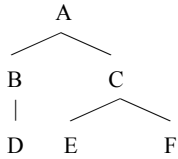
C-command



- What's c-command then?
- C-command is the structural relation holding between a node and its sister as well as any daughter(s) of that sister.

42

C-command



- “B c-commands C, E and F,” because C is a sister of B, and E and F are daughters of C.
- “C c-commands B and D,” because B is a sister of C, and D is a daughter of B.

43

Solving the binding puzzles

- So, how does c-command help us in explaining the facts of binding reflexives and pronouns?
- There are three binding conditions that regulate coreference in human language. Let’s start with the two relating to reflexives and pronouns first.

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Binding Conditions A and B

Binding Condition A:

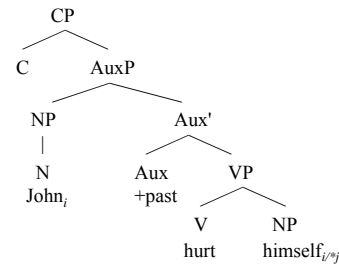
An anaphor (i.e., a reflexive or reciprocal expression) must be bound by a c-commanding NP in the smallest clause it is in.

Binding Condition B:

A pronoun cannot be bound by a c-commanding NP in the smallest clause it is in.

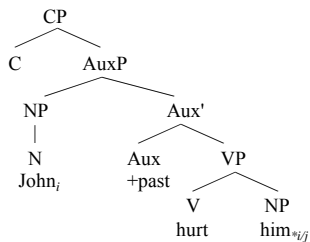
45

John_i hurt himself_{i/*j}



- Does binding of the reflexive *himself* obey Binding Condition A? ₄₆

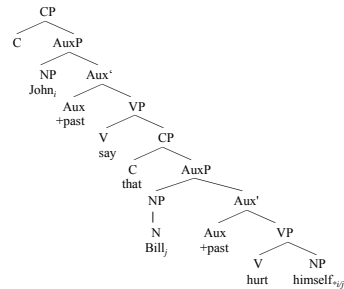
John_i hurt him_{*i/j}



- Does binding of the pronoun *him* obey Binding Condition B?

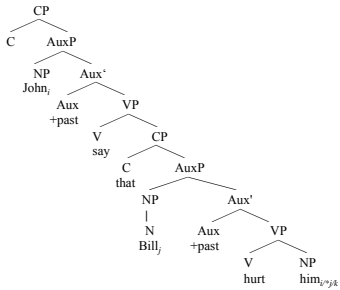
47

John_i said that Bill_j hurt himself_{*i/j}



- Does binding of the reflexive *himself* by the NP ‘Bill’ obey Binding Condition A? How about by the NP ‘John’?

John_i said that Bill_j hurt him_{i/*j/k}



- Does binding of the pronoun *him* by the NP 'Bill' obey Binding Condition B? How about by the NP 'John'?

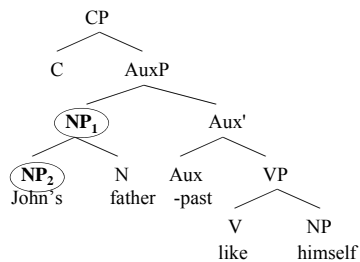
49

[[John]_i's father]_j likes himself_{i/j}.

[[John]_i's father]_j likes him_{i/*j/k}.

50

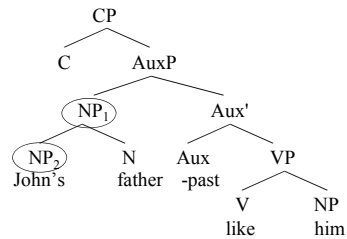
[[John]_i's father]_j likes himself_{i/j}



- Why is binding of the reflexive by NP₁ possible, but not by NP₂?

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[[John]_i's father]_j likes him_{i/*j/k}



- Why is coreference between *him* and NP₂ possible, but not between *him* and NP₁?

52

C-command matters

- Structure does matter. Hierarchy does matter.

53

Another puzzle, but this time without a discussion

- But now consider:
 - John_i loves his_i mother.
 - *John_i found Mary's picture of himself_i.
 - cf. John_i found a picture of himself_i.
- You should be able to see the problems here once you draw the trees. Can you think of a solution?

54

Ok, how about Condition C?

- Binding Condition C regulates coreference of referential expressions (basically NPs such as *John*, *this man*, *the tall lady with blonde hair*, etc.).

Binding Condition C:

A referential expression cannot be bound by a c-commanding NP in the sentence.

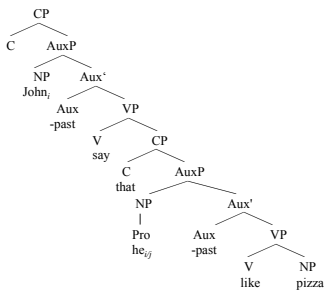
55

Binding Condition C

- Consider the coreference possibilities in the following two sentences from English:
 - John_i says that he_{i/j} likes pizza. (he may = John)
 - He_{*i/j} says that John_i likes pizza. (he may ≠ John)
- Again a structure-independent analysis is unlikely, since linear order seems irrelevant:
 - His_{i/j} mother says that John_i likes pizza. (his may = John)

56

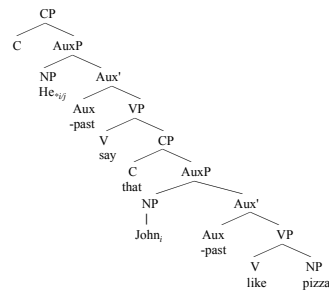
John_i says that he_{i/j} likes pizza.



- Does coreference between *John* and *he* here obey Binding Condition C?

57

He_{*i/j} says that John_i likes pizza.



- Does coreference between *John* and *he* here obey Binding Condition C?

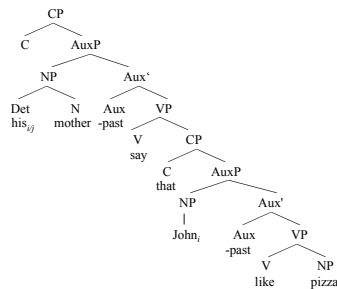
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- Now how about:

His_{i/j} mother says that John_i likes pizza.

59

His_{i/j} mother says that John_i likes pizza.



- Does coreference between *John* and *his* here obey Binding Condition C?

60

Binding Conditions and child language

- If Binding Conditions are part of UG, then we predict that child language will also abide by it.
- But how can we test that?
- Run an experiment. How else?

61

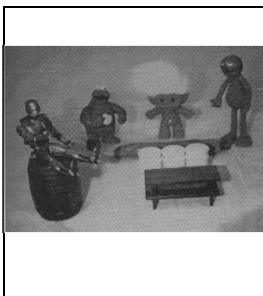
Designing the experiment

- Here's what we want to do: We want to set up a context, where Binding Condition C is violated, then elicit a response from kids to that violation.
- If kids disagree with the interpretation, then they must know the principle. If they accept the interpretation, then they do not know the principle.

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Testing Binding Condition C*

- Experimenter: This is a story about a jumping competition. The judge is Robocop. Last year he won the jumping competition, so this year he gets to be the judge. This year, these guys, Cookie Monster, the Troll and Grover are in the jumping competition. They have to try and jump over this log, the barrels and the benches over here.

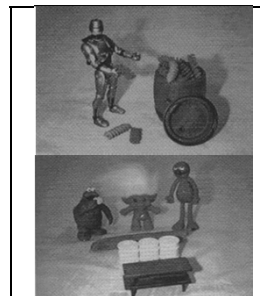


*Story and pictures were created by Stephen Crain and Rosalind Thornton, and can be found in Crain and Thornton 1998.

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Testing Binding Condition C

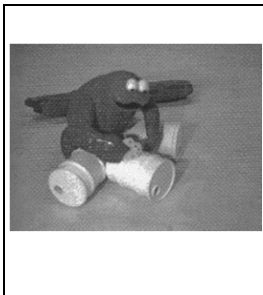
- Robocop: The winner of the competition gets a great prize, colored pasta! See, it's in this barrel right here.
- Robocop: Line up, everyone. Get ready to try and jump over all these things.



64

Testing Binding Condition C

- Robocop: You go first Cookie Monster.
- Cookie Monster: OK. Here I go. I made it over the first log. Now I'll try and jump over the barrels. Oh no! I crashed into them. Oh well. I'll try and jump the benches. Phew, they weren't so hard.



65

Testing Binding Condition C

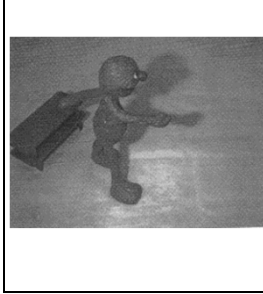
- Robocop: Your turn next, Troll.
- Troll: OK. I'm a good jumper. This should be easy for me. Over the log I go. Yeah! Now I'll try the barrels. Good. I jumped over them easily. Now for the benches. Good, I didn't knock anything over!



66

Testing Binding Condition C

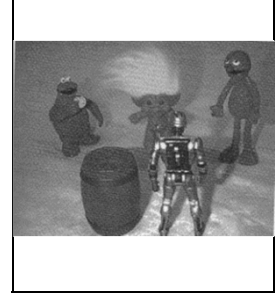
- Robocop: OK, Grover. Your turn.
- Grover: I'm a good jumper, too. Watch me! See how easily I could jump over the log? Now I'll jump over the barrels and the benches. Great. I didn't smash into anything, and I was really fast.



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Testing Binding Condition C

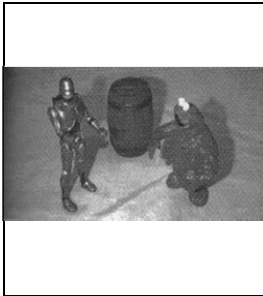
- Robocop: All right. Line up, guys. I'm ready to judge the competition. Let's see who wins this great colored pasta.



68

Testing Binding Condition C

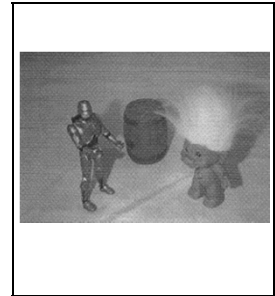
- Robocop: Cookie Monster. I'm afraid you aren't the winner. You crashed into the barrels. I think you've been eating too many cookies. You'd better eat fewer cookies and lose some weight. Then you'll be a better jumper.



69

Testing Binding Condition C

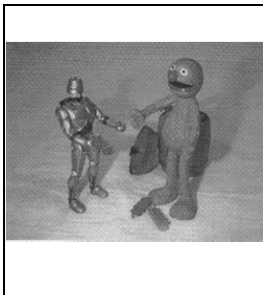
- Robocop: Troll, you jumped very well. You didn't crash into anything at all. You could be the winner. But let me judge Grover before I decide.



70

Testing Binding Condition C

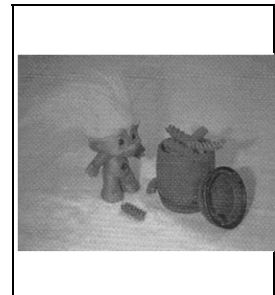
- Robocop: Grover, your jumps were very good too. You didn't knock anything down, and you were also very fast. So, I think you were the best jumper. You win the prize, this colored pasta. Well done, Grover. Great job!



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Testing Binding Condition C

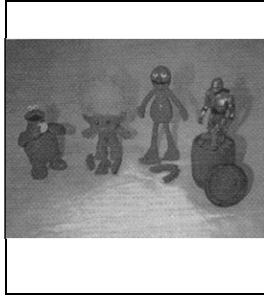
- Troll: No, Robocop, you're wrong! I am the best jumper. I think I should get the prize. I'm going to take some colored pasta for myself. [Helps himself]



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Testing Binding Condition C

- Kermit: Let me try to say what happened. That was a story about Robocop, who was the judge, and Cookie Monster, and Grover, and there was the Troll. I know one thing that happened. **He said that the Troll was the best jumper.**
- Child: NO, Kermit! You're wrong.



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Testing Binding Condition C

- Well, everything indicated that Kermit's sentence was true: The troll did jump well; the Troll also did say he was the best jumper; and the Troll was also eating delicious colored pasta.
- So, why wouldn't children agree with Kermit?
- Well ... seems like Prediction #2 is also borne out.

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So, to sum up

- Languages are different, but their variation is constrained by the general principles and parameters that UG makes available.
- Child language is subject to the same principles and parameters.
- Child language, therefore, will always fall within the realm of what is a "possible human language."

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Next class agenda

- Switching gear: Time to talk about language and society. Read chapter 10 on sociolinguistics.

76

References

- Baker, M. 2001. *The atoms of language*. New York: Basic Books.
- Cole, P. and G. Hermon. 2000. Partial Wh-Movement: Evidence from Malay. In Uli Lutz, Gereon Müller and Arni von Stechow (eds.), *Wh-Scope Marking*. Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Crain, S. 1991. Language acquisition in the absence of experience. *Behavioral and Brain Sciences* 14.4:597-650.
- Crain, S. and R. Thornton. 1998. *Investigations in Universal Grammar: A guide to experiments on the acquisition of syntax and semantics*. Cambridge, MA: The MIT Press.
- Horvath, J. 1997. The status of 'wh-expletives' and the partial wh-movement construction of Hungarian. *Natural Language and Linguistic Theory* 15:509-572.
- McDaniel, D. 1989. Partial and multiple wh-movement. *Natural Language and Linguistic Theory* 7, 565-604.
- Pinker, S. 1984. *Language Learnability and Language Development*. Cambridge, MA: Harvard University Press.
- Sadock, J. M. 1982. "The Bennis Optative: A spontaneous ergative construction in child speech". *Chicago Linguistic Society: Papers from the Parasession on Nondeclaratives*, pp. 186-193.
- Tomlin, Russell S. 1986. *Basic Word Order: Functional Principles*. Croom Helm, London.

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